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# Acting Autonomously or Mimicking the State and Peers? A Panel Tobit Analysis of Financial Dependence and Aid Allocation by Swiss NGOs

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**Abstract:**

NGO aid is still widely believed to be superior to official aid (ODA). However, the incentives of NGOs to excel and target aid to the poor and deserving are increasingly disputed. We contribute to the emerging literature on the allocation of NGO aid by performing panel Tobit estimations for Swiss NGOs. The analysis offers new insights in two major regards: First, we cover the allocation of both self-financed and officially co-financed aid for a large panel of NGOs and recipient countries. Second, by classifying each NGO according to its financing structure, we address the unresolved question of whether financial dependence on the government impairs the targeting of NGO aid. It turns out that NGOs mimic the state as well as NGO peers. Officially refinanced NGOs are more inclined to imitate the allocation of ODA. However, the degree of financial dependence does not affect the poverty orientation of NGO aid and the incentives of NGOs to engage in easier environments. The allocation of self-financed aid differs in several respects from the allocation of officially co-financed aid, including the role of financial dependence for imitating the state and herding among NGOs.

JEL code: F35

Keywords: NGO aid; aid allocation; official co-financing; financial dependence

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## 1. Introduction

Foreign aid granted by non-governmental organizations (NGOs) based in OECD donor countries is subject to considerable controversy. It is increasingly disputed whether the allocation of NGO aid is superior to the allocation of official development assistance (ODA). Recent findings indicate that NGOs tend to imitate the allocation of ODA rather than trying to excel and using their comparative advantages in reaching the poor and working in difficult local environments. Critics suspect that financial dependence on official "backdonors," i.e., government agencies co-financing the NGOs, undermines the autonomy of NGOs in allocating aid. In particular, financial dependence may weaken the incentive of NGOs to address entrenched forms of poverty and go where official donors are hardly present. To the best of our knowledge, the present study is the first to assess the link between financial dependence and the allocation of NGO aid systematically, based on a large panel of Swiss NGOs and aid recipient countries.

In contrast to the extensive literature on the allocation of ODA, empirical studies analyzing the allocation of NGO aid are still rare – despite its considerable importance in quantitative terms.[1] Dreher et al. (2007) on Sweden and Nunnenkamp et al. (2009) on Switzerland perform Tobit estimations in which either NGO aid or ODA are the dependent variable. The comparison of the corresponding marginal effects of various explanatory variables, including indicators on the recipients' need for aid and the donors' (political and economic) self interest, casts into doubt the still widely held belief that the targeting of NGO aid is generally more needs-based than that of ODA. Nancy and Yontcheva (2006) as well as Koch et al. (2009) take a different approach by adding ODA to the list of explanatory variables of NGO aid. In this way, it is tested whether NGOs imitate the allocation of ODA. This turns out to be the case for the sample of 61 NGOs from various donor countries in Koch et al. (2009). By contrast, the allocation of aid by European NGOs appears to be unaffected by ODA from the EU, even though the sample covered by Nancy and Yontcheva (2006) comprises officially co-financed NGOs.

While we essentially follow the approach of the latter two papers, this study draws on an exceptionally detailed database on Swiss NGO aid, allowing us to evaluate previously untested hypotheses. First of all, we use NGO-specific data on aid allocation across low and middle-income countries by more than 300 organizations. Second, we distinguish between self-financed and officially co-financed NGO aid; for NGOs relying on official co-financing we are thus able to assess whether the allocation of co-financed funds differs from the allocation of own resources. Third, and most importantly, we classify all NGOs according to their financing structure. This renders it possible to

[1] For instance, self-financed aid by Swiss NGOs accounted for 32 percent of Switzerland's total bilateral aid to developing countries in 2006 (DCC 2008: 12-13). See Werker and Ahmed (2008) for an analysis explaining the increased presence of NGOs in the last few decades.

assess the much disputed issue of whether the degree of financial dependence on official backdonors affects the allocation of NGO aid.

The structure of the paper is as follows. In Section 2, we refer to the principal-agent model of Fruttero and Gauri (2005) from which we derive several hypotheses concerning the effects of financial dependence on the allocation behavior of NGOs. The database on Swiss NGO aid is described in Section 3 which also presents the panel Tobit approach. Empirical results are shown in Section 4. We find that Swiss NGOs follow the state as well as NGO peers when allocating their aid. Furthermore, officially refinanced NGOs are more inclined to imitate the allocation of ODA. However, the degree of financial dependence does not affect the poverty orientation of NGO aid and the incentives of NGOs to engage in easier environments. The effects of financial dependence on herding among NGOs differ between the allocation of self-financed aid and the allocation of officially co-financed aid.

## 2. Analytical Background and Hypotheses

Traditional "articles of faith" (Tendler 1982) credit NGOs for being closer to the poor by circumventing governments in the recipient countries and dealing directly with local target groups (Riddell et al. 1995). Moreover, the World Bank (1998) posited that government-to-government transfers do not work when governance is particularly deficient in the recipient country, and argued that NGOs have a comparative advantage of working in difficult environments.

Some critics suspected in the 1990s already that NGOs might be less autonomous than widely believed. According to Edwards and Hulme (1996: 970), the relations of NGOs with state agencies are "too close for comfort" – with NGOs often becoming "the implementer of the policy agendas" of governments. Likewise, Fisher (1997) argues that "while the moniker 'nongovernment organization' suggests autonomy from government organizations, NGOs are often intimately connected with their home governments." In particular, the view has come under attack that NGOs have a stronger focus on the poor than state agencies.[2]

The critics' attempts to demystify NGO aid have largely in common with the proponents' articles of faith that they have rarely been subjected to empirical scrutiny. This applies especially to the conjecture that financial dependence of NGOs on government funding works against better targeted NGO aid. The principal-agent model of Fruttero and Gauri (2005) offers important insights on how official backdonors may weaken the incentives of NGOs to excel and compromise their charitable motivations. Several testable hypotheses can be derived from this model.

[2] See the references given in Edwards and Hulme (1996); more recent examples include Amin et al. (2003). Bebbington (2005: 937) notes that earlier "celebrations meant that inevitably disillusion would follow, and indeed it did."

Fruttero and Gauri (2005) show that the dependence of NGOs (the agents) on external funding (from official backdonors as principals) tends to drive a wedge between charitable objectives such as poverty alleviation in the recipient countries and organizational imperatives related to future NGO operations and sustained funding. This happens even if principals and agents share altruistic aid motivations. Principals have incomplete information on NGO projects, while future funding of agents depends on perceived success or failure of current projects. NGOs having to demonstrate success are inclined to avoid locations where "the risk of a failure is so high that it could jeopardize the flow of funding from donors" (Fruttero and Gauri 2005: 761).

Risk aversion could shape NGOs' aid allocation in several respects. First, it weakens their incentive to operate in difficult environments where the probability of failure is particularly high. NGOs facing fiercer competition for funding may rather allocate aid strategically to where success is easier to achieve (see also Bebbington 2004). Second, the poverty orientation of NGO aid may weaken if backdonors insist on immediate results; this is because visible results are easier to present when aid projects address less entrenched forms of poverty. NGOs may thus shift attention away from the neediest recipients. Third, there might be an incentive to locate where other donors are engaged as well. Conformity of location choices is supposed to render it more difficult for principals to assess the performance of individual agents, and may thus help prevent financial sanctions.

Fruttero and Gauri (2005) evaluate the location choices of NGOs empirically at the sub-national level within one particular recipient country, Bangladesh. They find support for several propositions derived from the principal-agent model of officially funded NGO aid. Most importantly, strategic funding considerations appear to have de-linked location choices from indicators of need in local communities. Furthermore, NGOs tended to prefer locations where official service providers were engaged as well. In other words, NGOs hardly specialized by making use of their perceived comparative advantage of working in difficult environments, but rather minimized risk by duplicating efforts of other donors.

As for aid allocation across recipient countries, however, the scarcity of data on the re-financing of NGOs has so far prevented systematic testing of the hypothesis that financial dependence on official backdonors distorts the allocation of NGO aid. As noted in the Introduction, Nancy and Yontcheva (2006) and Koch et al. (2009) come to opposing results on whether NGOs take the allocation of aid by official agencies into account when deciding on where to engage. Neither of the two studies differentiates between more and less financially dependent NGOs, however.[3] Both studies have also in

[3] The sample of Nancy and Yontcheva (2006) does not include NGOs that are financially independent from official EU financing. The sample of Koch et al. (2009) comprises five (endowed) foundations which do not receive public funds and, thus, do not have to care about the preferences of public backdonors. The results reported by Koch et al. are hardly affected when the five foundations are excluded from the overall sample of 61 NGOs.

common that self-financed NGO aid is not treated separately from officially co-financed aid, even though the allocation of these aid categories may differ from each other. These major shortcomings can be overcome by drawing on the exceptionally detailed database on Swiss NGO aid, described in the next section. These data will then be used to address the proposition of Fruttero and Gauri (2005: 773) that "an NGO might have to undertake pragmatic actions (that is, actions that increase the probability of survival, but that would not be undertaken were the NGO independent of external funding)." Specifically, it will be tested for a large panel of NGOs and recipient countries whether financial dependence leads NGOs to mimic the aid allocation of their official backdonors and NGO peers, weakens the poverty orientation of NGO aid, and provides disincentives for NGOs to work in difficult environments.

## 3. Data and Method

*Swiss NGO Aid*

The Swiss Agency for Development and Cooperation (French acronym DCC) reports exceptionally detailed data on Swiss NGO aid (DCC [a]). In particular, this source differentiates between two major aid channels involving Swiss NGOs. The first channel, labeled "NGO aid proper" in the following, concerns self-financed NGO aid; i.e., Swiss NGOs draw exclusively on their own revenues (notably private donations) to finance aid projects falling into this category. The second channel, so-called "contributions," relates to officially co-financed NGO aid. Co-financing can take different forms: so-called program block grants (covering a set of various projects and supporting NGO budgets over 3-4 years) as well as project-specific contributions (of about 30-50 percent) to the overall costs of project proposals designed by NGOs.[4]

Actually, there is a third aid channel involving NGOs as implementing agencies for projects designed and fully financed by official agencies. These so-called "mandates" represent a specific mode of ODA delivery, rather than NGO aid in a strict sense; official agencies award contracts to NGOs typically by means of public tender. In contrast to NGO aid proper and contributions, DCC does not report country-specific ODA delivery through mandates;[5] nor can it be figured out how strongly specific NGOs are involved in ODA delivery through mandates. This data limitation does not pose serious problems for the present analysis. To the contrary, one might even argue that we would bias our

[4] The data situation does not allow differentiating between program block grants and project-specific contributions at the level of specific recipient countries or NGOs. Broad indications are that project-specific contributions have declined in importance relative to program block grants (DCC [b], 2004; and e-mail communication with DCC staff).

[5] Some information on the overall importance of ODA delivery through mandates is available from DCC's Annual Reports (DCC [b]). For instance, official aid agencies concluded mandates in the order of CHF 295 million with Swiss NGOs in 2003-2004, compared to co-financing contributions in the order of CHF 120 million (DCC [b], 2004: Table 11). DCC ([b], 2007: Table 2) reports a similar relation between mandates and co-financing in most recent years.

results against finding evidence for well targeted NGO aid if mandates were included in assessing financial dependence on backdonors. ODA delivery through mandates implies by definition that NGOs allocate (this type of) aid according to the preferences of official donors. This is different from contributions where NGOs decide to apply for official co-financing of *self-designed* projects and programs. Not counting those funds as NGO aid that the backdonor explicitly requires to be used for pre-defined projects in a given country thus ensures a "fairer" assessment of the allocation of NGO aid.

An independent evaluation of DCC's cooperation with NGOs (DCC 2004: 13) expressed concerns that DCC's "extensive funding" may bode not well for NGOs' actual independence and autonomy. We use the data on NGO aid proper and contributions in two complementary ways to address this concern. In the basic specification for the overall sample of 307 Swiss NGOs, we consider $NGOaid_{ij}$ as the dependent variable, with *NGOaid* representing the sum of NGO aid proper and contributions, and *i* and *j* standing for the specific NGO and recipient country, respectively.[6] We also construct $Share_i$ as our measure of financial dependence on official backdonors, by relating the sum of all (country-specific) contributions received by NGO *i* to the total aid budget of NGO *i* (contributions plus NGO aid proper to all recipient countries). $Share_i$ is then interacted with several explanatory variables (see below) in order to test whether the impact of these variables on $NGOaid_{ij}$ depends on the degree of financial dependence.

Second, we focus on the sub-sample of 40 NGOs that actually received official co-financing in 2002-2005. In the estimations performed for this sub-sample, NGO aid proper and contributions enter alternatively as dependent variables. In this way, we can evaluate for those NGOs granting both types of aid whether financial dependence on backdonors affects the allocation of contributions more strongly than the allocation of NGO aid proper.

Here as well as in the regressions reported below we use four-year averages of NGO aid for the period 2002-2005.[7] Given the volatility of annual aid flows (Bulir and Hamann 2003; Gupta et al. 2006), it is advisable to smooth the aid data. For instance, averaging over several years reduces the impact of business cycles in the donor country. Private donations and, thus, NGO aid proper tend to be negatively affected during recessions. In the case of Switzerland, NGO aid proper declined by almost seven percent in 2002 when GDP growth had dwindled to 0.3 percent (from 3.6 percent in 2000). For the empirical estimations, we convert aid flows from Swiss Francs (CHF) into US Dollars, using annual average exchange rates.

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[6] Note that DCC [a] lists 439 NGOs. We do not consider the smallest 30 percent of all NGOs, which taken together account for only about 0.1 percent of total Swiss NGO aid. While this reduction of the NGO sample is quantitatively irrelevant, it prevents the failure of the Maximum Likelihood estimations to converge to an optimum.

[7] For earlier years, it appears impossible to consistently relate (project-specific) contributions to the particular NGO receiving official co-financing.

Excluding mandates for the reasons stated above, self-financed aid is clearly the dominant form of NGO aid. The annual average of NGO aid proper in 2002-2005 (CHF 368 million) exceeded the annual average of contributions (CHF 62 million) almost six-fold (DCC [a]). While most NGOs in our sample did not receive any contributions, the 40 NGOs with contributions are quantitatively important. They tend to be much larger than NGOs without contributions and accounted for half of total NGO aid in 2002-2005 (Table 1). The degree of financial dependence varies widely across NGOs with contributions. *Share* is below ten percent for seven of the 40 NGOs, whereas it exceeds 70 percent for another seven NGOs. Within the sub-sample, *Share* is negatively correlated with NGO size in terms of (self-financed plus officially co-financed) NGO aid, but the correlation coefficient of -0.26 is statistically significant at the ten percent level only. At the same time, the correlation of 0.63 between self-financed NGO aid and contributions is statistically significant at the one percent level.

Table 1: Swiss NGO aid, sample characteristics

| | Officially co-financed NGOs | | Other NGOs (*Share* =0) |
|---|---|---|---|
| | *NGOaid* | *Share* | *NGOaid* |
| Median | 1166 | 0.234 | 62 |
| Mean | 3068 | 0.355 | 462 |
| Std. dev. | 4893 | 0.281 | 1712 |
| Number NGOs | 40 | | 267 |
| Share in total *NGOaid* (%) | 49.9 | | 50.1 |

Note that *NGOaid* is the sum of self-financed and officially co-financed NGO aid (in 1000 US$). *Share* is the relation of contributions to *NGOaid.*
Source: DCC [a].

*Explanatory Variables*

In line with the previous literature on aid allocation, we include a standard set of possible determinants of NGO aid. First of all, the logged per-capita GDP (purchasing power parity adjusted constant 2000 international US$) of recipient countries provides an indicator of need which has repeatedly been shown to shape the distribution of aid (Berthélemy and Tichit 2004; Berthélemy 2006; Nunnenkamp and Thiele 2006; Dollar and Levin 2006). We expect the marginal effects of per-capita GDP on aid to be significantly negative. Second, we use "control of corruption" (*Corruption* for short) as presented by Kaufmann, Kraay and Mastruzzi (2007) to measure institutional development, with higher index values indicating less corruption. The effect on NGO aid is ambiguous *a priori*. The argument that NGOs have a comparative advantage to work in difficult environments implies a negative correlation between NGO aid and *Corruption*. As noted in Section 2, however, NGOs may rather prefer environments where

success is easier to achieve. Third, we control for (logged) population of recipient countries, which is required as the dependent variable is not in per-capita terms. Fourth, we account for natural disasters which often motivate emergency aid to recipient countries; the severity of disasters is proxied by the logged number of people affected (*Disaster*).[8] Fifth, we set a dummy variable equal to one for so-called fragile states (*Fragile*); fragile states may confront donors with a particularly difficult environment, though one in which aid may provide an effective means of post-conflict resolution (Collier and Hoeffler 2004).

In addition to these variables, we follow Nancy and Yontcheva (2006) as well as Koch et al. (2009) by accounting for ODA as a factor that may affect the allocation of NGO aid.[9] If NGOs mimic the allocation of ODA, we would expect a significantly positive coefficient on ODA. In contrast to Nancy and Yontcheva (2006) and Koch et al. (2009), we account for possible over-specification related to the inclusion of ODA as explanatory variable. The allocation of ODA has often been shown to depend on the variables just mentioned, in addition to the political and trade-related self-interest official donors may have.[10] Therefore, we first regress Swiss ODA on these aid determinants (see Appendix 4). The generalized residuals from this Tobit regression[11] (*ODAresid* in the following), comprising the additional information on ODA that is not explained by the five determinants listed in the previous paragraph, then enter as explanatory variable into the model on NGO aid.[12] When presenting our results we focus on that part of ODA left unexplained by the variables included in our model, but the statistical significance of ODA does not depend on this choice (see below).

Moreover, as noted above, we interact *ODAresid* with *Share*. This implies that *Share* by itself has to be included in the list of explanatory variables. If financially more dependent NGOs are more likely to mimic the allocation of ODA, the coefficient on the interaction term should be positive and significant. We also control for a particular NGO's budget (*NGO budget*), as larger NGOs tend to grant higher amounts of aid to a particular recipient country, all else equal. Finally, we also take account of

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[8] Gassebner et al. (2009) show that while natural disasters destroy a country's export capacities, their impact on imports depend on the level of democracy. While autocracies have lower levels of imports in the aftermath of disasters, democracies increase their imports, e.g., via increased aid flows.

[9] More precisely, we consider Swiss public aid minus contributions as the latter are included in the former.

[10] Recent studies include Berthelémy (2006), Nunnenkamp and Thiele (2006), Dollar and Levin (2006), Kuziemko and Werker (2007) and Dreher, Sturm and Vreeland (2009).

[11] The generalized residuals are defined as $\frac{1}{\sigma^2}[z_j(y_j - x_j'\beta) - (1-z_j)\sigma\lambda_j]$ with $z_j = 1$ if ODA>0 and $z_j = 0$ if ODA=0, $\lambda_j = \frac{\phi_j(x_j'\beta/\sigma)}{1-\Phi_j(x_j'\beta/\sigma)}$ with $\phi_j$ indicating the standard normal density function, $\Phi_j$ the cumulative standard normal distribution and $\sigma$ being the standard deviation (Greene 2003: 771).

[12] In other words, we assume that any variation in the other five explanatory variables influences *NGOaid* directly and not via ODA.

the possibility that omitted variables affect NGO aid and ODA at the same time by making use of a suitable instrument, as detailed below.

In summary, we specify $NGOaid_{ij}$ (aid from NGO *i* to recipient country *j*) as a function of the following variables:

$NGOaid_{ij}$ = f(*per-capitaGDP*$_j$, *Corruption*$_j$, *Population*$_j$, *Disaster*$_j$, *Fragile*$_j$, *NGO_budget*$_i$, *ODAresid*$_j$, *Share*$_i$, *ODAresid*$_j$**Share*$_i$)

We extend this basic specification in several ways. For instance, we account for the possibility that financial dependence might also affect the impact of country characteristics (*per-capita GDP*, *Corruption* and *Fragile*) on the allocation of NGO aid. Hence, we also interact *Share* with these characteristics. Furthermore, we assess the incentive of NGOs to allocate aid to where other NGOs are active as well. In other words, the hypothesized conformity of location choices is tested with respect to both official backdonors and NGO peers.

Appendix 1 provides detailed definitions and sources for all variables. Appendices 2 and 3 present descriptive statistics and the bivariate correlation matrix, respectively.

*Method*

A distinguishing feature of our data is that the dependent variable has many zero observations. The clustering of zero observations is due to the fact that most NGOs, especially small NGOs, engage in a limited number of recipient countries; e.g., they may focus on a particular region. This requires a nonlinear method of estimation as OLS estimations would be biased.[13] We adopt a random effects panel Tobit approach with Swiss NGOs and aid recipient countries representing the two dimensions of our data:

$$\begin{aligned} y_{ij} &= \max(0, x_{ij}\beta + v_i + u_{ij}) \\ u_{ij} \mid x_i, v_i &\sim Normal(0, \sigma_u^2) \qquad j = 1,...,J \\ v_i \mid x_i &\sim Normal(0, \sigma_v^2) \end{aligned} \tag{1}$$

where $y_{ij}$ stands for aid from NGO *i* to recipient country *j* and $x_{ij}$ refers to the determinants of NGO aid; $v_i$ are the random effects, while $u_{ij}$ is an iid error term.

[13] For a more detailed discussion of methodological issues related to the aid allocation literature, see Neumayer (2002; 2003) and Berthélemy (2006).

Note that the coefficient $\beta$ cannot be interpreted directly in the context of the nonlinear Tobit model. Instead, we are interested in the marginal effects of the explanatory variables on either $P(y_{ij}>0 \mid x_{ij})$, $E(y_{ij} \mid x_{ij}, y_{ij}>0)$ or $E(y_{ij} \mid x_{ij})$. We calculate them below at the mean of the respective covariates.

Given that our model also includes interaction terms, we face an additional complication: Interpreting the interaction effect in nonlinear models (such as Tobit) is not analogous to linear models. As Ai and Norton (2003: 123) point out, "the magnitude of the interaction effect in nonlinear models does not equal the marginal effect of the interaction term." It can even be "of opposite sign." Moreover, a simple t-test on the coefficient of the interaction term is not appropriate to test for the significance of the interaction. Rather, we have to calculate the cross derivative in order to test for the significance of the respective coefficient (e.g., at the mean of all independent variables). Omitting subscripts, for the overall marginal effect $E(y_{ij} \mid x_{ij})$ we obtain:

$$\frac{\partial E(y \mid x)}{\partial x_1 \partial x_2} = \beta_{12}\Phi(\frac{x\beta}{\sigma}) + (\beta_1 + \beta_{12}\bar{x}_2)\phi(\frac{x\beta}{\sigma})\frac{(\beta_2 + \beta_{12}\bar{x}_1)}{\sigma} \qquad (2)$$

with $\phi$ indicating the standard normal density function, $\Phi$ the cumulative standard normal distribution, $\sigma$ being the standard deviation, and $\beta_1, \beta_2, \beta_{12}$ being the coefficients of the two variables forming the interaction and the interacted variable, respectively. The x's are the corresponding variables indexed accordingly, while the over bar indicates the mean value at which we calculate the interaction effect.

The marginal effects have to be calculated by building the first derivative of $P(y_{ij}>0 \mid x_{ij})$, $E(y_{ij} \mid x_{ij}, y_{ij}>0)$ or $E(y_{ij} \mid x_{ij})$, respectively. These partial derivatives amount to:

$$\frac{\partial \mathrm{P}(\mathrm{y}>0 \mid \mathrm{x})}{\partial x_1} = (\frac{\beta_1 + \beta_{12}\bar{x}_2}{\sigma})\phi(\frac{x\beta}{\sigma}), \qquad (3)$$

$$\frac{\partial \mathrm{E}(\mathrm{y} \mid \mathrm{x}, \mathrm{y}>0)}{\partial x_1} = (\beta_1 + \beta_{12}\bar{x}_2)\left\{1 - \lambda(\frac{x\beta}{\sigma})\left[\frac{x\beta}{\sigma} + \lambda(\frac{x\beta}{\sigma})\right]\right\}, \qquad (4)$$

$$\frac{\partial \mathrm{E}(\mathrm{y} \mid \mathrm{x})}{\partial x_1} = (\beta_1 + \beta_{12}\bar{x}_2)\Phi(\frac{x\beta}{\sigma}), \qquad (5)$$

with $\lambda$ being the ratio between $\phi$ and $\Phi$. Note that in contrast to linear models, the significance of the interaction term depends on all variables included in the model.[14]

Finally, the dependent variables are skewed so that we logged them, following standard practice in large parts of the aid allocation literature. The sample of recipients comprises 126 low- and middle income countries, and excludes countries with per-capita GDP exceeding US$ 13.000.

[14] We calculate the marginal effects using the nlcom command of Stata, version 10.1.

Table 2: Total sample of Swiss NGOs: panel Tobit results, coefficients, total NGO aid

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Per-capita GDP | -0.469*** | -0.059 | -0.542*** | -0.537*** | -0.534*** | -0.537*** | -0.536*** | -0.524*** | -0.412*** | -0.413*** |
| | (0.093) | (0.099) | (0.094) | (0.093) | (0.093) | (0.093) | (0.093) | (0.097) | (0.090) | (0.090) |
| Population | 0.959*** | 0.631*** | 1.119*** | 1.113*** | 1.105*** | 1.113*** | 1.113*** | 1.113*** | 0.920*** | 0.918*** |
| | (0.051) | (0.056) | (0.056) | (0.055) | (0.055) | (0.055) | (0.055) | (0.055) | (0.052) | (0.052) |
| Disaster | 0.143*** | 0.152*** | 0.141*** | 0.139*** | 0.139*** | 0.139*** | 0.139*** | 0.139*** | 0.116*** | 0.116*** |
| | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.021) | (0.021) |
| Corruption | -0.144 | 0.228 | 0.009 | -0.001 | 0.001 | -0.001 | -0.057 | -0.001 | -0.238 | -0.227 |
| | (0.163) | (0.164) | (0.162) | (0.160) | (0.160) | (0.160) | (0.169) | (0.160) | (0.160) | (0.159) |
| Fragile | 0.136 | 0.337 | 0.126 | 0.136 | 0.127 | 0.087 | 0.137 | 0.136 | 0.148 | 0.150 |
| | (0.205) | (0.205) | (0.204) | (0.202) | (0.202) | (0.214) | (0.202) | (0.202) | (0.197) | (0.197) |
| ODA | | 0.463*** | | | | | | | | |
| | | (0.037) | | | | | | | | |
| ODAresid | | | 2.534*** | 2.183*** | 2.139*** | 2.183*** | 2.185*** | 2.180*** | 1.704*** | 1.703*** |
| | | | (0.206) | (0.213) | (0.224) | (0.213) | (0.213) | (0.213) | (0.198) | (0.198) |
| NGO budget | | | | 1.431*** | 1.392*** | 1.431*** | 1.431*** | 1.431*** | 1.429*** | 1.431*** |
| | | | | (0.079) | (0.089) | (0.079) | (0.079) | (0.079) | (0.079) | (0.078) |
| Share | | | | -2.334** | | -2.470*** | -1.917* | -0.551 | -2.329*** | -2.963*** |
| | | | | (0.906) | | (0.929) | (0.981) | (3.987) | (0.903) | (0.942) |
| ODAresid_x_Share | | | | 6.045*** | | 6.093*** | 5.898*** | 6.125*** | 5.641*** | 5.693*** |
| | | | | (1.299) | | (1.307) | (1.297) | (1.315) | (1.254) | (1.273) |
| ConSum | | | | | -0.016 | | | | | |
| | | | | | (0.073) | | | | | |
| ODAresid_x_ConSum | | | | | 0.250*** | | | | | |
| | | | | | (0.068) | | | | | |
| Share_x_Fragile | | | | | | 0.820 | | | | |
| | | | | | | (1.159) | | | | |
| Share_x_Corruption | | | | | | | 0.898 | | | |
| | | | | | | | (0.832) | | | |
| Share_x_per-capita GDP | | | | | | | | -0.229 | | |
| | | | | | | | | (0.500) | | |
| #NGOs_resid | | | | | | | | | 0.105*** | 0.100*** |
| | | | | | | | | | (0.005) | (0.005) |
| #NGOs_resid_x_Share | | | | | | | | | | 0.090*** |
| | | | | | | | | | | (0.031) |
| Constant | -23.562*** | -24.629*** | -25.535*** | -32.127*** | -31.915*** | -32.125*** | -32.161*** | -32.224*** | -29.715*** | -29.646*** |
| | (1.118) | (1.141) | (1.161) | (1.254) | (1.262) | (1.254) | (1.255) | (1.273) | (1.209) | (1.207) |
| Observations | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 |
| Number of NGOs | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 |

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 3: Total sample of Swiss NGOs: panel Tobit results, overall marginal effects, total NGO aid

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Per-capita GDP | -0.019*** | -0.002 | -0.020*** | -0.014*** | -0.014*** | -0.014*** | -0.014*** | -0.014*** | -0.010*** | -0.010*** |
| | (0.004) | (0.004) | (0.004) | (0.002) | (0.002) | (0.002) | (0.002) | (0.003) | (0.002) | (0.002) |
| Population | 0.039*** | 0.024*** | 0.042*** | 0.028*** | 0.028*** | 0.028*** | 0.028*** | 0.028*** | 0.022*** | 0.022*** |
| | (0.003) | (0.003) | (0.004) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Disaster | 0.006*** | 0.006*** | 0.005*** | 0.004*** | 0.004*** | 0.004*** | 0.004*** | 0.004*** | 0.003*** | 0.003*** |
| | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) | (0.001) |
| Corruption | -0.006 | 0.009 | 0.000 | -0.000 | 0.000 | -0.000 | -0.000 | -0.000 | -0.006 | -0.005 |
| | (0.007) | (0.006) | (0.006) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| Fragile | 0.006 | 0.013 | 0.005 | 0.004 | 0.003 | 0.003 | 0.004 | 0.003 | 0.004 | 0.004 |
| | (0.009) | (0.008) | (0.008) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) | (0.005) |
| ODA | | 0.017*** | | | | | | | | |
| | | (0.002) | | | | | | | | |
| ODAresid | | | 0.094*** | 0.062*** | 0.060*** | 0.062*** | 0.062*** | 0.062*** | 0.047*** | 0.047*** |
| | | | (0.010) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.006) | (0.006) |
| NGO budget | | | | 0.036*** | 0.036*** | 0.036*** | 0.036*** | 0.036*** | 0.034*** | 0.034*** |
| | | | | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) | (0.003) |
| Share | | | | -0.059** | | -0.060** | -0.058** | -0.060** | -0.056** | -0.071*** |
| | | | | (0.023) | | (0.024) | (0.023) | (0.024) | (0.022) | (0.024) |
| ODAresid_x_Share | | | | 0.092** | | 0.093** | 0.090** | 0.093** | 0.088*** | 0.076** |
| | | | | (0.038) | | (0.038) | (0.038) | (0.038) | (0.034) | (0.034) |
| ConSum | | | | | -0.000 | | | | | |
| | | | | | (0.002) | | | | | |
| ODAresid_x_ConSum | | | | | 0.006** | | | | | |
| | | | | | (0.003) | | | | | |
| Share_x_Fragile | | | | | | 0.018 | | | | |
| | | | | | | (0.030) | | | | |
| Share_x_Corruption | | | | | | | 0.023 | | | |
| | | | | | | | (0.022) | | | |
| Share_x_per-capita GDP | | | | | | | | 0.008 | | |
| | | | | | | | | (0.013) | | |
| #NGOs_resid | | | | | | | | | 0.003*** | 0.003*** |
| | | | | | | | | | (0.000) | (0.000) |
| #NGOs_resid_x_Share | | | | | | | | | | -0.001 |
| | | | | | | | | | | (0.001) |
| Observations | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 | 38682 |
| Number of NGOs | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 | 307 |

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

## 4. Empirical Results

*Overall NGO Sample*

The interpretation of our results is largely restricted to the overall marginal effects (OMEs) that the explanatory variables have on $E(y_{ij} \mid x_{ij})$. The marginal effects of the interaction terms and the interacted variables (and their corresponding standard errors) are calculated following (2) and (5) above. While we do not show tables reporting the marginal effects according to (3) and (4), we discuss them in the text for our variables of main interest. Tables 2 and 3 report the results for the overall sample of 307 Swiss NGOs. While Table 2 shows the coefficients of the respective variables, Table 3 reports the corresponding OMEs.

The basic specification in column (1) is restricted to the standard determinants of aid, in order to be able to compare our results with earlier work. Recall that the present results are based on a panel analysis of NGO-specific aid, whereas previous studies typically consider aggregate NGO aid. Nevertheless, the findings on the standard aid determinants are very similar. Our measure of need for aid, per-capita GDP, turns out to be negative and significant at the one percent level (i.e., as expected, higher-income countries get less aid). Also at the one percent level of significance, the positive coefficient on population signals that larger countries receive more NGO aid. *Corruption* and *Fragile* are not significant at conventional levels as in Nunnenkamp et al. (2009), indicating that Swiss NGOs do not grant more aid to countries with difficult environments – even though the World Bank (1998) suggests that NGOs may have a comparative advantage to work there. Finally, NGOs grant more aid to recipient countries hit by (more serious) disasters, at the one percent level of significance.

In column (2) we add ODA to the basic specification. As can be seen, NGO aid rises with ODA, at the one percent level of significance. However, the results also show that per-capita GDP becomes insignificant when ODA is included, nicely illustrating why we prefer to purge ODA of its likely determinants and to use *ODAresid* rather than ODA.

Before turning to the impact of *ODAresid*, we test for the potential endogeneity of *ODAresid* with respect to NGO aid. Arguably, even though we purged the original ODA variable from the influence of those variables we control for in the regression, omitted variables might drive both ODA and NGO aid. To formally test for endogeneity, we make use of an instrument that has become standard in the recent political economy literature on aid: a country's voting behavior in the United Nations General Assembly. The empirical literature on political influences shows that developing countries get more aid and better terms from official donors when they have closer political ties with the donor, as measured by their voting behavior in the General Assembly (Thacker 1999; Alesina and Dollar 2000; Vreeland 2005; Barro and Lee 2005; Dreher and Jensen 2007; Bjørnskov 2009; Kilby 2009). Relying on data from Voeten (2004), we code votes in agreement with Switzerland as 1, votes in

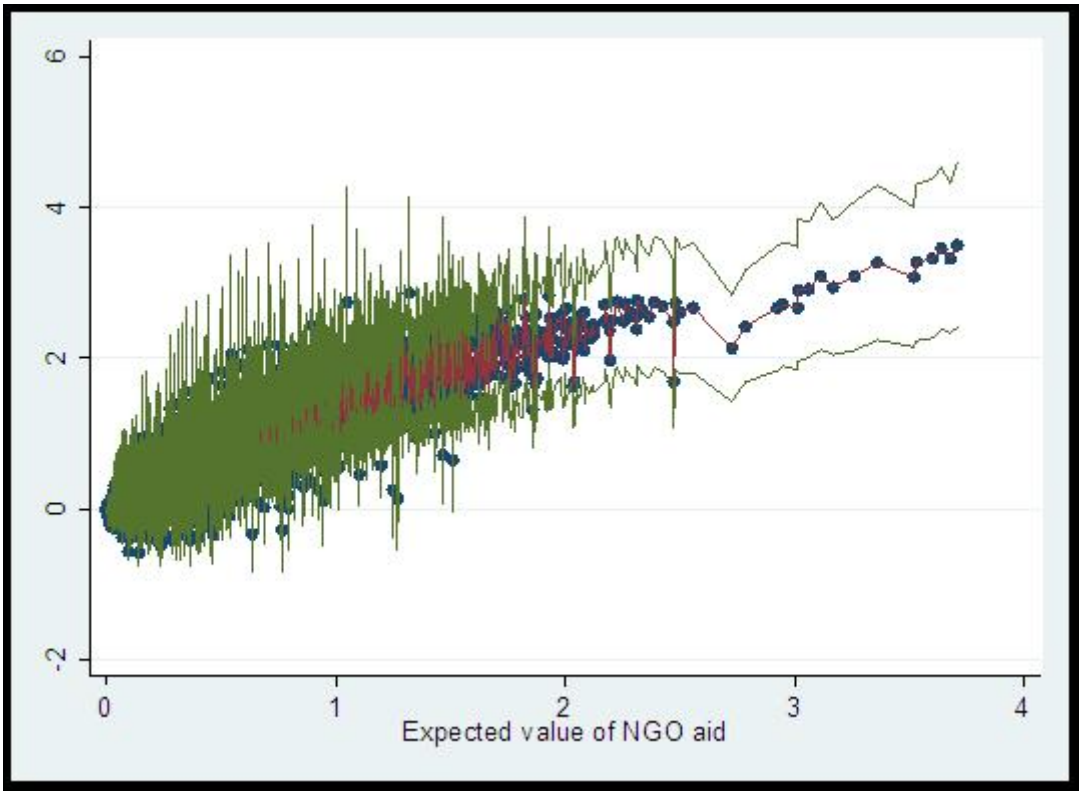
disagreement as 0, and absences and abstentions as 0.5. We then divide by the total number of votes in a particular year to derive a measure of voting coincidence between zero and one. While related to the amount of Swiss ODA a country receives, there should not be a direct impact of political considerations on NGO aid. Using the Smith-Blundell procedure to test for endogeneity,[15] we find that – controlling for the other variables in our model – *ODAresid* is not endogenous to NGO aid (see Appendix 5).

Turning to the results with *ODAresid* included, the standard determinants of NGO aid are hardly affected as compared to column (1) when augmenting the specification by our variables of principal interest in columns (3) and (4). In particular, per-capita GDP is significant at the one percent level again. We now also include the NGO's overall budget, which enters with the expected positive coefficient, significant at the one percent level. Swiss ODA and its interaction with the NGO's financial dependence on official backdonors clearly affect the allocation of NGO aid. According to the marginal effects shown in Table 3, *ODAresid* is significant at the one percent level at the mean of the independent variables when included individually (column 3) and has the expected positive coefficient. This result holds when calculating the marginal effects according to equations (3) and (4) above (not shown in the table). Calculated at the minimum and, respectively, maximum of *ODAresid* the overall marginal effect remains significant at the one percent level. Quantitatively, our results imply that an increase in *ODAresid* by 1 percent increases NGO aid by 0.094 percent, according to column (3). The corresponding increase is 0.02 percent at the minimum value of *ODAresid* and 0.2 percent at the maximum.

With the interaction term included (column 4), and calculating the marginal effects in line with equations (2) and (5) above, NGO aid still increases with *ODAresid*, at the one percent level of significance. The results also show that NGO aid decreases with higher financial dependence, at the five percent level of significance, while the interaction between *ODAresid* and *Share* has a positive coefficient (and is also significant at the five percent level). Our results thus corroborate the finding of Koch et al. (2009) that NGOs tend to follow official donors when deciding on the cross-country allocation of aid. The new insight here is that the degree to which NGOs mimic the allocation of ODA increases considerably with financial dependence on official backdonors. In Figure 1 we show the marginal effect and significance (with 90 percent confidence intervals) of the interaction effect depending on the expected value of NGO aid. Only at low values the impact of the interaction of *ODAresid*Share* on the amount of NGO aid is not significant at conventional levels. For 78 percent of all observations, the marginal effect is significant at the ten percent level at least. The figure also shows that the impact becomes quantitatively more important with rising values of (expected) NGO aid.

[15] See, e.g., Wooldridge (2002: 531).

Figure 1: Marginal effects of the interaction *ODAresid*Share*




Notes: Shows the effect of the interaction between *ODAresid* and *Share* (column 4 of Table 3). Each dot represents the marginal effect for one observation. Also shown is the 90 percent confidence interval for each marginal effect.

Turning to the marginal effect of *ODAresid*, NGO aid increases by 0.062 percent at the mean of the explanatory variables with an increase of *ODAresid* by 1 percent. Note that the marginal effects of *ODAresid* are again equally significant at the one percent level when calculated in line with equations (3) and (4).

The remainder of Table 3 offers various extensions and tests for robustness. In column (5), we consider the possibility that the incentives of NGOs to imitate the allocation of ODA depend not only on the *relative* financial dependence on official backdonors but also on the absolute amount of contributions. Replacing *Share*, our preferred measure of financial dependence, by *ConSum* leaves our results unaffected. Comparing column (5) with the corresponding column (4), the sign as well as the significance level of the interaction term remains the same.

Next, we account for additional interactions of *Share* with other explanatory variables. Note that we keep the interaction with *ODAresid* in columns (6)-(10) as previous results suggest that dropping this interaction would result in omitted variable bias. We add the interaction of *Share* with *Fragile*, *Corruption*, and *per-capita GDP*, respectively. The first two interactions are meant to capture the effect financial dependence may have on the NGOs' incentive to operate in easier environments. However, the marginal effects of the interactions are not significant at conventional levels (calculated with

equation (2) above). In other words, we do not find evidence supporting the hypothesis that financially dependent NGOs avoid difficult environments in order to secure future official co-financing by demonstrating visible success stories. This is not really surprising once it is taken into account that even NGOs without any official co-financing did not allocate aid according to their perceived comparative advantage of working in difficult environments. The marginal effects on our two institutional indicators *per se* continue to be insignificant in columns (6) and (7).[16] It also remains that NGOs imitate the allocation of ODA. Likewise, previous findings prove to be robust when adding the interaction with per-capita GDP in column (8). At the same time, the insignificant interaction term suggests that the degree of financial dependence does not affect the poverty orientation of NGO aid.[17]

Finally, we take into account that NGOs may not only follow their official backdonor but also NGO peers. In columns (9) of Tables 2 and 3, we augment the estimation equation by including the number of other Swiss NGOs being active in a recipient country. Similar to ODA before, we account for possible over-specification related to the inclusion of the number of other NGOs as explanatory variable. Therefore, we consider the residuals from a first-stage OLS regression with the number of NGOs as the dependent variable (see Appendix 6). Moreover, again similar to the discussion regarding ODA above, we check for potential endogeneity problems. Unlike for ODA, however, there is no standard instrument for the number of NGOs present in a particular country. We propose the degree of linguistic fractionalization in the recipient country as instrument. Switzerland is a highly fragmented country, with four official languages.[18] Arguably, a linguistically fractionalized recipient country will attract a larger number of Swiss NGOs. Most obviously perhaps, recipient countries where at least part of the population is French speaking can be expected to attract more NGOs from French speaking Swiss cantons. NGOs representing Swiss (linguistic) minorities may feel compelled to engage in countries with often discriminated minorities. The number of NGOs is also likely to increase because of a general affinity of Swiss donors with similarly fractionalized recipient countries. While thus raising the number of NGOs present in a particular country, there is no reason to assume that fractionalization is directly related with the amount of aid given by one particular NGO, other than through its impact on the number of NGOs. In analogy to our results for ODA above, using this instrument – and controlling for the other determinants of NGO aid – we do not find that the number of NGOs is endogenous to NGO aid.[19]

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[16] Note that these marginal effects have again been calculated with Stata's nlcom command.
[17] Note, however, that the insignificant interaction with per-capita GDP may be due to the extremely strong correlation between *Share* and the interaction term.
[18] These languages are German, French, Italian, and Rumantsch.
[19] The results are shown in Appendix 7.

Table 4: Sub-sample of officially co-financed NGOs: panel Tobit results, overall marginal effects

| | Total NGO aid | | | | | NGO aid proper | | | | | Contributions | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| Per-capita GDP | -0.042* | -0.046** | -0.027** | -0.019* | -0.019* | -0.041* | -0.044** | -0.026** | -0.018* | -0.018* | -0.030** | -0.028** | -0.016** | -0.012** | -0.012** |
| | (0.023) | (0.021) | (0.012) | (0.011) | (0.010) | (0.021) | (0.020) | (0.011) | (0.010) | (0.010) | (0.015) | (0.012) | (0.006) | (0.005) | (0.005) |
| Population | 0.100*** | 0.111*** | 0.068*** | 0.053*** | 0.052*** | 0.095*** | 0.105*** | 0.063*** | 0.050*** | 0.049*** | 0.028*** | 0.033*** | 0.019*** | 0.009*** | 0.009*** |
| | (0.020) | (0.022) | (0.009) | (0.008) | (0.008) | (0.019) | (0.021) | (0.008) | (0.007) | (0.007) | (0.008) | (0.008) | (0.004) | (0.003) | (0.003) |
| Disaster | 0.021*** | 0.019*** | 0.011*** | 0.009*** | 0.009*** | 0.019*** | 0.017*** | 0.010*** | 0.008*** | 0.008*** | 0.013*** | 0.010*** | 0.005*** | 0.004*** | 0.004*** |
| | (0.006) | (0.006) | (0.003) | (0.003) | (0.003) | (0.006) | (0.005) | (0.003) | (0.002) | (0.002) | (0.004) | (0.003) | (0.002) | (0.001) | (0.001) |
| Corruption | 0.022 | 0.037 | 0.021 | 0.016 | 0.016 | 0.020 | 0.034 | 0.019 | 0.014 | 0.014 | 0.037 | 0.036* | 0.020* | 0.018** | 0.018** |
| | (0.037) | (0.033) | (0.019) | (0.018) | (0.017) | (0.035) | (0.031) | (0.018) | (0.017) | (0.016) | (0.025) | (0.019) | (0.010) | (0.009) | (0.009) |
| Fragile | 0.043 | 0.044 | 0.030 | 0.029 | 0.029 | 0.039 | 0.039 | 0.027 | 0.026 | 0.025 | 0.018 | 0.020 | 0.014 | 0.013 | 0.013 |
| | (0.052) | (0.046) | (0.028) | (0.026) | (0.026) | (0.048) | (0.043) | (0.026) | (0.024) | (0.024) | (0.034) | (0.026) | (0.016) | (0.014) | (0.014) |
| ODAresid | | 0.378*** | 0.267*** | 0.219*** | 0.213*** | | 0.353*** | 0.245*** | 0.200*** | 0.196*** | | 0.177*** | 0.107*** | 0.071*** | 0.070** |
| | | (0.078) | (0.044) | (0.038) | (0.038) | | (0.074) | (0.041) | (0.035) | (0.035) | | (0.039) | (0.039) | (0.027) | (0.027) |
| NGO budget | | | 0.100*** | 0.094*** | 0.092*** | | | 0.093*** | 0.087*** | 0.086*** | | | 0.034*** | 0.030*** | 0.030*** |
| | | | (0.014) | (0.013) | (0.013) | | | (0.013) | (0.012) | (0.012) | | | (0.005) | (0.004) | (0.004) |
| Share | | | -0.164** | -0.158** | -0.176*** | | | -0.168*** | -0.163*** | -0.177*** | | | 0.045* | 0.039* | 0.035 |
| | | | (0.066) | (0.063) | (0.063) | | | (0.062) | (0.059) | (0.060) | | | (0.026) | (0.022) | (0.023) |
| ODAresid_x_Share | | | 0.046 | 0.022 | -0.015 | | | -0.001 | -0.021 | -0.048 | | | 0.242** | 0.183** | 0.174** |
| | | | (0.134) | (0.118) | (0.117) | | | (0.124) | (0.108) | (0.108) | | | (0.089) | (0.071) | (0.071) |
| #NGOs_resid | | | | 0.007*** | 0.007*** | | | | 0.006*** | 0.006*** | | | | 0.003*** | 0.003** |
| | | | | (0.001) | (0.001) | | | | (0.001) | (0.001) | | | | (0.000) | (0.001) |
| #NGOs_resid_x_Share | | | | | -0.006* | | | | | -0.006** | | | | | 0.003** |
| | | | | | (0.003) | | | | | (0.003) | | | | | (0.002) |
| Observations | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 | 5040 |
| Number of NGOs | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |

Notes: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

According to the results, and in line with the principal-agent model of Fruttero and Gauri (2005), the significantly positive coefficient on *#NGOs_resid* indicates that NGOs grant more aid to where their peers are engaged as well, controlled for the usual determinants of location choice. Arguably, conformity of location choices tends to render it more difficult for principals to assess and sanction individual agents, increasing the incentive to go where others already are. But the results in column (10) of Table 3 reveal that the incentive to hide in the NGO crowd does not depend on financial dependence on the official backdonor. In quantitative terms, an increase in the number of *#NGOs_resid* present in a particular country by one increases NGO aid by 0.003 percent. This result holds when using the number of NGOs, rather than the residual, at the one percent level of significance. Note also that all major results on other determinants of NGO aid remain.

*Officially Co-financed NGOs*

We now turn to the sub-sample of 40 Swiss NGOs that actually received official co-financing, though to widely different degree (see Section 3). The specification of the Tobit models is as before except that we do not report all of the previous extensions. We replicate the estimations for total aid granted by the sub-sample of officially co-financed NGOs in columns (1)-(5) of Table 4.[20] More interestingly, however, we perform separate estimations by distinguishing between the two types of NGO aid, i.e., self-financed NGO aid proper in columns (6)-(10) and officially co-financed contributions in columns (11)-(15).

In several respects, the results for total NGO aid in Table 4 are fairly similar to those reported before for the overall sample of 307 Swiss NGOs. Once again, population, the NGO's budget, and the severity of disasters enter positively and highly significantly. Poorer countries still get more aid, even though the level of significance is lower than in Table 3. The insignificance of the two indicators *Corruption* and *Fragile* reveals that the institutional environment prevailing in the recipient countries did not shape the allocation of aid by the sub-sample of NGOs, in line with the findings for the overall sample. There is also a close resemblance of findings in that NGOs generally tend to follow the allocation of ODA and go where other NGOs are present. In contrast to the full sample, it appears that the incentive to mimic the state no longer strengthens with stronger financial dependence on public co-financing. The interaction of *Share* with *ODAresid* turns insignificant in column (3). However, when calculating the effect of the interaction for each individual observation rather than at the mean, the effect is still significant, at the ten percent level at least, for almost 40 percent of the observations. The

[20] To save space we only report the overall marginal effects at the mean here; the coefficients of all explanatory variables are available on request.

interaction with *#NGOs_resid* turns out to be negative and significant at the ten percent level in column (5) of Table 4.

The effect of the interaction between *Share* and *ODAresid* may weaken in the reduced sample as the "dependency syndrome" (DCC, 2004: 59) results at least partly from accepting public co-financing at all, and not only from co-financing contributing a large share to the NGO's overall budget. At the same time, the interaction effects may work in opposite directions for the two types of aid in the sub-sample of NGOs. This possibility is addressed next by raising the question of whether officially co-financed NGOs allocate self-financed aid differently from the contributions of the backdonor.

Indeed, the allocation of NGO aid proper differs in several respects from the allocation of contributions.[21] The evidence is mixed on whether NGOs are more inclined to allocate contributions to countries offering an easier environment. In conflict with this proposition, the poverty orientation of contributions does not appear to be consistently weaker than that of NGO aid proper. On the other hand, *Corruption* enters significantly positively in columns (12)-(15) for contributions, while all institutional indicators remain insignificant for NGO aid proper. Recalling that higher values of *Corruption* reflect more advanced institutions, it appears that the allocation of contributions is biased towards easier (institutional) environments.[22] It remains open to debate, however, if this is due to NGOs attempting to secure future financing by demonstrating success stories. The same bias could result from official backdonors using the co-financing of NGOs as a means to channel aid to well governed recipient countries. In this way, aid agencies such as DCC may have circumvented mission statements that require them to engage primarily in less benign environments in order to actively fight problems of corruption.

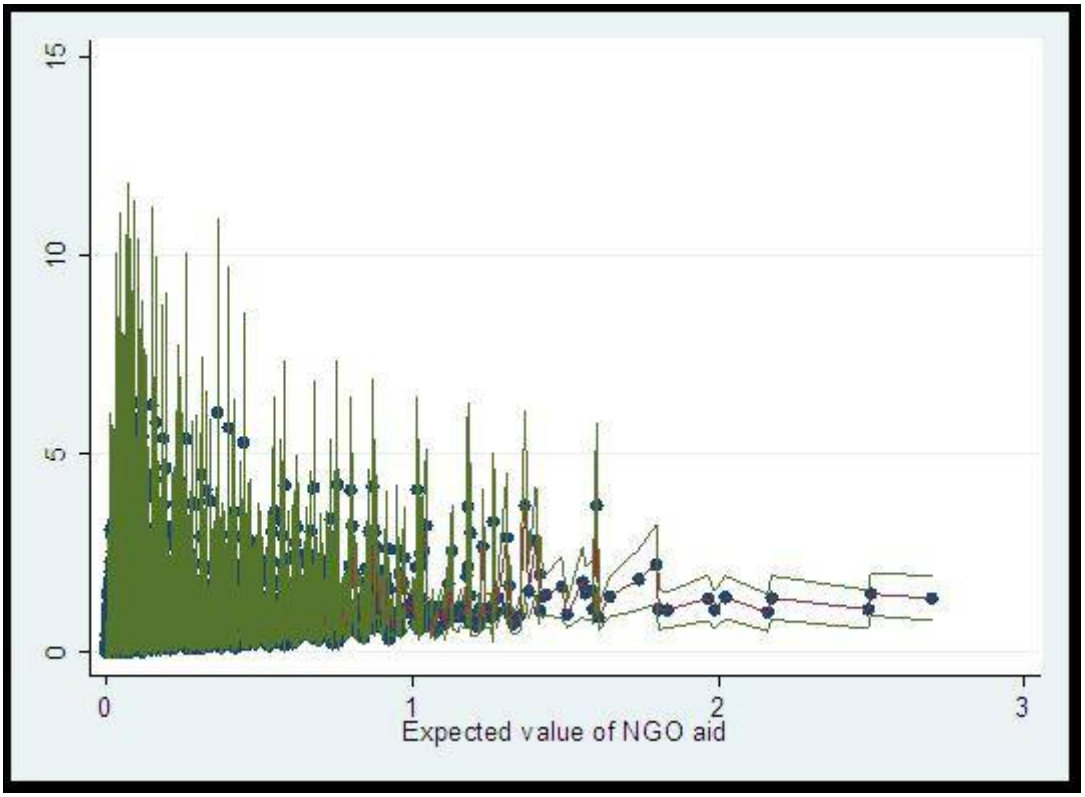
Regarding the allocation of contributions, we find strong evidence on NGOs mimicking the state. Calculating the elasticity of contributions with respect to *ODAresid* reveals an elasticity of 0.18 percent at the mean of the variables (Column 12). In addition, the incentive of NGOs to mimic the state and follow NGO peers strengthens with stronger dependence on official refinancing. According to columns (13) and (15) of Table 4, the interaction of *Share* with both *ODAresid* and, respectively, *#NGOs_resid* turns out to be significantly positive at the five percent level, calculated at the mean of the other variables, with a marginal effect of 0.242 for *ODAresid*Share* in column (13). Figure 2 shows the marginal effects of the interaction term corresponding to the model shown in column (13) (with 90 percent confidence intervals) depending on the expected value of the contributions. For almost

[21] By contrast, the results for NGO aid proper are very close to those for total NGO aid. This is not surprising recalling that NGO aid proper accounts for the bulk of total NGO aid even in the sub-sample of officially co-financed NGOs. Note also that total NGO aid and NGO aid proper are highly correlated, while the correlation with contributions is relatively weak (Appendix 3).

[22] This does not hold for *Fragile*, however.

80 percent of the observations, the marginal effect is significant at the ten percent level at least. The figure also shows that the quantitative impact does not systematically depend on the (expected) values of contributions.

Figure 2: Marginal effects of the interaction *ODAresid*Share*, Contributions




Notes: Shows the effect of the interaction between *ODAresid* and *Share* (column 13 of Table 4). Each dot represents the marginal effect for one observation. Also shown is the 90 percent confidence interval for each marginal effect.

Herding behaviour can also be observed when it comes to the allocation of NGO aid proper. The overall marginal effects of *ODAresid* as well as *#NGOs_resid* are significantly positive at the one percent level. In contrast to contributions, however, the degree to which NGOs depend on official backdonors has no say on their incentive to mimic the allocation behaviour of the backdonor, according to column (8) of Table 4. The interaction of *Share* with *#NGOs_resid* turns out to be negative, at the five percent level of significance, for NGO aid proper (column 10).

In particular the latter finding suggests that the allocation of NGO aid tends to be affected not only by financial dependence on official backdonors but also by the competition for private donations. Note that NGOs with less official refinancing are under fiercer pressure to raise a sufficient amount of private donations. Arguably, private donations respond to visible success stories – i.e., obviously successful NGO projects – in essentially the same way as does official refinancing, especially when the

allocation of NGO aid proper is concerned. In other words, principal-agent problems are not confined to official backdonors. This would explain that the interaction effects of *Share* work in opposite directions for the two types of NGO aid. Yet both types of aid would still have in common that herding of NGOs tends to reduce the risk of future financing.

## 5. Summary and Conclusions

While NGO aid has gained considerable importance in quantitative terms, it is increasingly disputed whether the allocation of NGO aid is superior to that of ODA. Principal-agent models suggest that NGOs have incentives to follow official donors and NGO peers, rather than trying to excel and swim against the tide. However, empirical studies systematically evaluating the allocation of NGO aid are still rare – in contrast to the extensive literature on the allocation of ODA.

To help closing this gap we draw on the exceptionally rich, though largely ignored, data on aid granted by Swiss NGOs. We contribute in three important ways to the nascent literature on NGO aid. First, we perform panel Tobit estimations covering more than 300 NGOs and essentially all aid recipient countries. Second, we distinguish between self-financed NGO aid and officially co-financed NGO aid. Third, and most importantly, we classify all NGOs according to their financial dependence on government support. This allows us to address the unresolved issue of whether financial dependence on official backdonors induces NGOs to mimic the allocation of ODA and go where most NGO are active, rather than deciding autonomously on where to engage.

We find that NGOs are generally inclined to follow official donors. At the same time, the inclination to mimic the allocation of ODA turns out to be stronger for NGOs receiving official co-financing. The finding that financial dependence strengthens parallel behavior of NGOs and the state is robust to changes in the specification of the estimation equation for the full sample. We also support the view that NGOs tend to locate where their peers are active, probably because conformity of location choices renders it more difficult for official backdonors to assess and sanction individual NGOs.

In contrast to what one might suspect, financial dependence did not impair the poverty orientation of NGO aid. Neither did we find evidence that financially dependent NGOs have weaker incentives to engage in difficult environments. This seems to be largely because Swiss NGOs were generally reluctant to go where ODA is widely supposed to fail due to particularly weak institutions and deficient governance. There are some indications, however, that the allocation of one particular type of NGO aid, namely officially co-financed aid, is biased towards recipient countries with less corruption. Finally, it is this type of NGO aid for which a higher degree of financial dependence considerably strengthens the inclination of NGOs to follow official backdonors.

Taken together, our findings caution against the view that aid would be better targeted to the needy and deserving if only NGOs had more resources at their disposal. In particular, providing NGOs with more public resources by officially co-financing NGO aid may make little difference to raising ODA directly. The Swiss example suggests that NGOs are unlikely to swim against the tide especially when accepting official co-financing. NGOs might better do without public financial support if they really want to distinguish themselves from other donors. This is not to ignore, however, that the fierce competition for private donations may also give rise to principal-agent problems.

Of course, Switzerland is too small as a donor to come up with general verdicts on the allocation of NGO aid. This applies all the more so to the effectiveness of NGO aid in promoting the economic and social development of recipient countries, compared to the effectiveness of ODA. It would thus be desirable to perform similar case studies on NGO aid for other donor countries, especially quantitatively more important donors such as the United States, France, Germany or the United Kingdom. Other possible extensions of the present analysis include, e.g., assessing the location choices of NGOs at a finer geographical level *within* recipient countries and adding a time dimension to the analysis. It remains to be seen whether NGOs help overcome serious data constraints and support future research along these lines by opening their books on aid allocation and the structure of financing.

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Appendix 1:
Variable description and sources

| Variable | Description | Source |
|---|---|---|
| NGO aid | Sum of (self-financed) NGO aid proper and (officially co-financed) contributions; natural logs of 1 + the original values; average for 2002-2005. | DCC, various issues; see also: DCC online statistics, http://www.deza.ch/en/Home/documentation (accessed: October 2008) |
| NGO aid proper | Self-financed NGO aid; natural logs of 1 + the original values; average for 2002-2005. | DCC, various issues; DCC online statistics |
| NGO budget | NGO aid proper plus contributions to all recipient countries; natural logs of 1 + the original values; average for 2002-2005. | DCC, various issues; DCC online statistics |
| Contributions | Official co-financing of projects and programs of Swiss NGOs; natural logs of 1 + the original values; average for 2002-2005. | DCC, various issues; DCC online statistics |
| Share | Sum of contributions over all recipient countries, relative to total NGO aid. | DCC, various issues; DCC online statistics |
| ConSum | Sum of contributions to a specific NGO's budget over all recipient countries. | DCC, various issues; DCC online statistics |
| ODA | Swiss public aid minus contributions; natural logs of 1 + the original values; average for 2002-2005. | DCC, various issues; DCC online statistics |
| ODAresid | Generalized residuals of a Tobit regression of Swiss ODA (excluding contributions) on GDP, Population, Corruption, Fragile. | |
| # NGOs | Number of other NGOs engaged in a country. | DCC, various issues; DCC online statistics |
| Per-capita GDP | Per-capita GDP at constant 2000 US$, PPP adjusted; natural logs; average for 1997-2001. | World Bank, World Development Indicators 2006 |
| Population | Population in natural logs; average for 1997-2001. | World Bank, World Development Indicators 2006 |
| Disaster | Number of people affected by disasters; natural logs; average for 1997-2001. | International Disaster Database, http://www.em-dat.net/ (accessed: November 2008) |
| Corruption | Control of corruption; index ranging from -2.5 to 2.5 with higher values indicating less corruption; average for 1996-2000. | Kaufmann, Kraay and Mastruzzi (2007) |
| Fragile | Dummy = 1 for countries with CPIA of 3.0 or below in 2005. | World Bank's Country and Institutional Assessment (CPIA) |
| Fractionalization, language | Herfindahl index of language fractionalization. | Alesina et al. (2003) |
| UN voting | Voting coincidence between Switzerland and aid recipient countries in the United Nations General Assembly; average for 2002-2005. | Voeten (2004) |

Note that NGO aid, NGO aid proper, contributions and the number of (other) NGOs are specific for each NGO *i* and recipient country *j*.

Appendix 2:
Descriptive statistics, total sample of Swiss NGOs

| | Obs. | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| NGO aid (in 1,000 US$) | 38682 | 6.36 | 106.15 | 0 | 16798.09 |
| NGO aid proper (in 1,000 US$) | 38682 | 5.54 | 102.10 | 0 | 16798.09 |
| Contributions (in 1,000 US$) | 38682 | 0.82 | 16.58 | 0 | 806.13 |
| Per-capita GDP (constant 2000 US$) | 38682 | 4167.11 | 3192.90 | 491.63 | 16807.28 |
| Population (number) | 38682 | 38000000 | 143000000 | 42705 | 1250000000 |
| Disaster | 38682 | 8.98 | 4.33 | 0 | 18.19 |
| Corruption | 38682 | -0.41 | 0.51 | -1.68 | 1.34 |
| Fragile | 38682 | 0.13 | 0.34 | 0 | 1 |
| UN voting | 38375 | 0.70 | 0.07 | 0.51 | 0.88 |
| Fractionalization, language | 35919 | 0.47 | 0.29 | 0.01 | 0.92 |
| ODA (in 1,000 US$) | 38682 | 4141.33 | 5538.44 | 0 | 24271.64 |
| ODAresid | 38682 | 0 | 0.41 | -1.46 | 0.94 |
| NGO budget (in 1,000 US$) | 38682 | 801.46 | 2520.35 | 8.72 | 21561.47 |
| Share | 38682 | 0.05 | 0.17 | 0 | 0.91 |
| ConSum (in 1,000 US$) | 38682 | 107.95 | 564.56 | 0 | 6748.94 |
| #NGOs | 38682 | 17 | 15.88 | 0 | 83 |
| #NGOs_resid | 38682 | 0 | 11.19 | -22.30 | 39.39 |

Appendix 3:
Correlations between dependent and independent variables, total sample of Swiss NGOs

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) | (23) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) NGO aid | 1.000 | | | | | | | | | | | | | | | | | | | | | | |
| (2) NGO aid proper | 0.997 | 1.000 | | | | | | | | | | | | | | | | | | | | | |
| (3) Contributions | 0.465 | 0.416 | 1.000 | | | | | | | | | | | | | | | | | | | | |
| (4) per-capita GDP | -0.054 | -0.055 | -0.018 | 1.000 | | | | | | | | | | | | | | | | | | | |
| (5) Population | 0.137 | 0.138 | 0.039 | -0.229 | 1.000 | | | | | | | | | | | | | | | | | | |
| (6) Disaster | 0.112 | 0.113 | 0.039 | -0.284 | 0.553 | 1.000 | | | | | | | | | | | | | | | | | |
| (7) Corruption | -0.034 | -0.035 | -0.005 | 0.527 | -0.160 | -0.109 | 1.000 | | | | | | | | | | | | | | | | |
| (8) Fragile | -0.002 | -0.003 | -0.002 | -0.342 | -0.067 | -0.046 | -0.276 | 1.000 | | | | | | | | | | | | | | | |
| (9) UN voting | 0.003 | 0.003 | -0.006 | 0.344 | 0.197 | 0.040 | 0.255 | -0.284 | 1.000 | | | | | | | | | | | | | | |
| (10) Fractionalizaton language | 0.038 | 0.040 | 0.004 | -0.490 | 0.078 | 0.121 | -0.276 | 0.249 | -0.329 | 1.000 | | | | | | | | | | | | | |
| (11) ODA | 0.121 | 0.121 | 0.045 | -0.424 | 0.672 | 0.398 | -0.293 | 0.029 | 0.183 | 0.138 | 1.000 | | | | | | | | | | | | |
| (12) ODAresid | 0.029 | 0.028 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.248 | -0.069 | 0.676 | 1.000 | | | | | | | | | | | |
| (13) NGO budget | 0.259 | 0.258 | 0.134 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | | | | | | | | | | |
| (14) Share | 0.040 | 0.031 | 0.123 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.229 | 1.000 | | | | | | | | | |
| (15) ConSum | 0.167 | 0.159 | 0.219 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.494 | 0.730 | 1.000 | | | | | | | | |
| (16) #NGOs | 0.198 | 0.198 | 0.079 | -0.256 | 0.662 | 0.529 | -0.157 | -0.020 | 0.033 | 0.182 | 0.587 | 0.146 | -0.003 | 0.000 | -0.002 | 1.000 | | | | | | | |
| (17) #NGOs_resid | 0.134 | 0.133 | 0.065 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -0.125 | 0.127 | 0.023 | 0.000 | 0.000 | 0.000 | -0.001 | 0.705 | 1.000 | | | | | | |
| (18) ODAresid_x_Share | 0.034 | 0.028 | 0.059 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.071 | -0.020 | 0.194 | 0.287 | 0.000 | 0.000 | 0.000 | 0.042 | 0.000 | 1.000 | | | | | |
| (19) ODAresid_x_ConSum | 0.060 | 0.057 | 0.072 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.088 | -0.025 | 0.240 | 0.355 | 0.000 | 0.000 | 0.000 | 0.051 | 0.000 | 0.756 | 1.000 | | | | |
| (20) Share_x_Fragile | 0.012 | 0.008 | 0.040 | -0.092 | -0.018 | -0.013 | -0.074 | 0.269 | -0.076 | 0.067 | 0.008 | 0.000 | 0.081 | 0.354 | 0.258 | -0.006 | 0.000 | 0.000 | 0.000 | 1.000 | | | |
| (21) Share_x_Corruption | -0.032 | -0.027 | -0.080 | 0.121 | -0.037 | -0.025 | 0.229 | -0.063 | 0.059 | -0.062 | -0.067 | 0.000 | -0.138 | -0.605 | -0.442 | -0.036 | 0.000 | 0.000 | 0.000 | -0.420 | 1.000 | | |
| (22) Share_x_per-capita GDP | 0.038 | 0.028 | 0.119 | 0.032 | -0.007 | -0.009 | 0.017 | -0.011 | 0.011 | -0.016 | -0.014 | 0.000 | 0.227 | 0.994 | 0.726 | -0.008 | 0.000 | 0.000 | 0.000 | 0.316 | -0.554 | 1.000 | |
| (23) #NGOs_x_Share | 0.097 | 0.082 | 0.199 | -0.051 | 0.133 | 0.106 | -0.031 | -0.004 | 0.007 | 0.036 | 0.118 | 0.029 | 0.163 | 0.716 | 0.522 | 0.200 | 0.141 | 0.102 | 0.077 | 0.240 | -0.520 | 0.692 | 1.000 |

Appendix 4:

First-stage regression, Tobit estimations with public aid (ODA) as the dependent variable

| | Coefficients | Overall marginal effects |
|---|---|---|
| | (1) | (2) |
| Per-capita GDP | -1.077*** | -1.071*** |
| | (0.320) | (0.318) |
| Population | 1.112*** | 1.105*** |
| | (0.137) | (0.136) |
| Disaster | -0.026 | -0.026 |
| | (0.062) | (0.062) |
| Corruption | -0.503 | -0.500 |
| | (0.503) | (0.499) |
| Fragile | -0.465 | -0.461 |
| | (0.694) | (0.688) |
| Constant | -2.649 | |
| | (3.478) | |
| Observations | 126 | 126 |

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Appendix 5:

## Test for endogeneity of ODA, UN voting as the instrumental variable

Column (1): first-stage Tobit estimation with ODA as the dependent variable

Column (2): second-stage panel Tobit estimation with residuals of 1st stage as additional regressor

| | (1) | (2) |
|---|---|---|
| Per-capita GDP | -1.573*** | -0.248 |
| | (0.017) | (0.160) |
| Population | 1.020*** | 0.765*** |
| | (0.007) | (0.117) |
| Disaster | -0.041*** | 0.141*** |
| | (0.003) | (0.022) |
| Corruption | -0.533*** | 0.180 |
| | (0.026) | (0.169) |
| Fragile | -0.376*** | 0.205 |
| | (0.036) | (0.221) |
| UN Voting | 10.764*** | |
| | (0.178) | |
| ODA | | 0.324*** |
| | | (0.109) |
| First-stage residuals | | 0.539 |
| | | (0.503) |
| Constant | -4.610*** | -24.218*** |
| | (0.191) | (1.142) |
| Observations | 38375 | 38375 |

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Appendix 6:

First-stage regression, OLS with # NGOs as the dependent variable, coefficients

| | (1) | (2) |
|---|---|---|
| Per-capita GDP | -1.253*** | -1.253*** |
| | (0.085) | (0.234) |
| Population | 4.205*** | 4.195*** |
| | (0.035) | (0.097) |
| Disaster | 0.803*** | 0.800*** |
| | (0.016) | (0.045) |
| Corruption | -0.428*** | -0.431 |
| | (0.133) | (0.367) |
| Fragile | -0.098 | -0.103 |
| | (0.182) | (0.502) |
| ODAresid | 5.654*** | 5.600*** |
| | (0.145) | (0.622) |
| NGO budget | -0.030 | -0.047 |
| | (0.033) | (0.105) |
| Share | 0.058 | 0.056 |
| | (0.375) | (0.648) |
| ODAresid_x_Share | -0.059 | 0.035 |
| | (0.889) | (1.381) |
| Constant | -46.024*** | -45.736*** |
| | (0.926) | (2.667) |
| Observations | 38682 | 5040 |

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Appendix 7:

## Test for endogeneity of #NGOs, language fractionalization as the instrumental variable

Column (1): first stage OLS estimation with #NGOs as the dependent variable

Column (2): second stage panel Tobit estimation with residuals of 1st stage as additional regressor

| | Total sample (1) | Subsample (2) |
|---|---|---|
| Per-capita GDP | -0.194** | -0.193* |
| | (0.092) | (0.109) |
| Population | 4.584*** | 0.147 |
| | (0.038) | (0.195) |
| Disaster | 0.802*** | -0.011 |
| | (0.016) | (0.037) |
| Corruption | -0.691*** | -0.092 |
| | (0.133) | (0.164) |
| Fragile | -1.028*** | 0.050 |
| | (0.186) | (0.208) |
| ODAresid | 6.467*** | 0.720** |
| | (0.149) | (0.291) |
| NGO budget | -0.031 | 1.435*** |
| | (0.034) | (0.080) |
| Share | 0.065 | -2.705*** |
| | (0.385) | (0.929) |
| ODAresid_x_Share | -0.054 | 5.358*** |
| | (0.915) | (1.298) |
| Fract. Language | 6.429*** | |
| | (0.231) | |
| #NGOs | | 0.165*** |
| | | (0.041) |
| First-stage residuals | | -0.060 |
| | | (0.041) |
| Constant | -63.870*** | -20.886*** |
| | (1.028) | (2.405) |
| Observations | 35919 | 35919 |

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1